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(54) EDIBLE OIL AND FAT COMPOSITION CONTAINING HYDROPHOBIC EXTRACT OF LICORICE

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a composition containing a hydrophobic extract of licorice, which is widely useful for a food, is stable and readily handleable by examining a solvent to solve the hydrophobic extract of licorice since the hydrophobic extract of licorice has difficulty in use because it is hardly soluble in water and ordinary oil.

SOLUTION: The edible oil and fat composition is obtained by dissolving the hydrophobic extract of licorice in a diglyceride mixture and is used in an oil and fat-using food. Preferably an extract from *Glycyrrhiza uralensis* or *Glycyrrhiza glabra* is used as the hydrophobic extract of licorice. The content of the hydrophobic extract of licorice in the edible oil and fat composition is  $\geq 0.5$  wt.% based on 100 wt.% of the edible oil and fat composition and further preferably the amount of diglyceride in the diglyceride mixture is  $\geq 20$  wt.%.

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CLAIMS

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[Claim(s)]

[Claim 1]A glycyrrhiza hydrophobic extract --- a jig resaler --- ide --- an edible-oil-and-fat constituent which dissolves in a mixture.

[Claim 2]A glycyrrhiza hydrophobic extract is GURIKIRURIZA. Reverse side RENSISHU or GURIKIRURIZA. The edible-oil-and-fat constituent according to claim 1 being an extract from a grabbler.

[Claim 3]A glycyrrhiza hydrophobic extract is 0.5 % of the weight or more among an edible-oil-and-fat constituent to 100 % of the weight of edible-oil-and-fat constituents --- and a jig resaler --- ide --- the inside of a mixture, and a jig resaler --- the edible-oil-and-fat constituent according to any one of claims 1 to 2, wherein ide is 20 % of the weight or more.

[Claim 4]Fats-and-oils use foodstuffs which use the oil and fat composition according to any one of claims 1 to 3.

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DETAILED DESCRIPTION

[Detailed Description of the Invention.]

[0001]

[Field of the Invention]This invention relates to the glycyrrhiza hydrophobic extract content oil and fat composition which can be used for eating-and-drinking articles, such as health food and a food with health claims (a food for specified health use, a nutritional performance food), drugs, etc.

[0002]

[Description of the Prior Art]Glycyrrhiza and its water extract are used as a crude drug with a painkilling antispasmodic action and an expectration operation, or foodstuffs. Since the glycyrrhizin (glycyrrhizic acid) which is the main ingredients has about 200 times as much saccharinity as sucrose, it is used also as sweetners.

[0003]On the other hand, it is checked that the glycyrrhiza hydrophobic extract extracted from glycyrrhiza or glycyrrhiza water extraction residue with an organic solvent shows many useful operations, such as an antioxidant operation, an antibacterial action, an enzyme inhibition operation, antitumor action, an antiallergic action, and an antiviral action. In the newest research, having a hypoglycemic action and a lipid metabolism improving action is found out (\*\*\*\*\* 2001-106216).

[0004]However, a glycyrrhiza hydrophobic extract hardly dissolves in water and a common oil, and it is easy to join with an organic solvent extract, and unstable things, such as coloring, are known. For the reason, to pharmaceutical-preparation-ize was needed for the stable state that it is easy to deal with it, but the ethanol and propylene glycol which have been used as an extraction solvent, a 1,3-butyleneglycol, etc. had a problem of use for things and foodstuffs with bad stability being restricted conventionally.

[0005]As a trial which improves these, use of medium-chain-fatty-acid triglyceride is indicated by the patent No. 2794433, and use of polyhydric alcohol fatty acid ester is indicated by JP,2000-239176,A, respectively. However, the low smoke point at the time of using it for the problem of the anus disclosure at the time of taking in medium-chain-fatty-acid triglyceride as cooking oil or cooking is a problem.

It is difficult to use it as cooking oil.

Polyhydric alcohol fatty acid ester as an emulsifier has strong surface activity, and since having big influence on the description of an oil and fat composition and the different taste peculiar to an emulsifier pose a problem, the use as foodstuffs is limited. The diglycerol monoisostearate made still the more nearly optimal in respect of solvent power cannot be used for foodstuffs.

[0006]On the other hand — a jig resaler — although ide is contained with conjugated lipid, such as monoglyceride and phospholipid, free fatty acid, etc. as an accessory constituent in natural oil fat, it is industrially used in the field of cosmetics, drugs, etc. as a base, and is used also in the food field as the physical-properties improving agent and edible oil and fat of fats and oils.

[0007]

[Problem(s) to be Solved by the Invention]As mentioned above, although it had the efficacy outstanding as eating-and-drinking articles, such as health food and a food with health claims (a food for specified health use, a nutritional performance food), and drugs, the glycyrrhiza hydrophobic extract was difficult to use in order to hardly dissolve in water and a common oil. Although it is generally known that monoglyceride will dissolve a glycyrrhiza hydrophobic extract, since there is a problem of the crystal depositing at the different taste peculiar to the surface activity and emulsifier and ordinary temperature, the use in the case of adding in an eating-and-drinking article etc. is

restricted. Therefore, an object of this invention is to obtain the glycyrrhiza hydrophobic extract containing composition with a sufficient sex which can be broadly used for foodstuffs and which is stable and deals with it.

[0008]

[Means for Solving the Problem]a result in which this invention persons inquired wholeheartedly in view of the above-mentioned actual condition — as the solvent of a glycyrrhiza hydrophobic extract — a jig resaler — ide — the above-mentioned purpose by using a mixture, [attain and] It finds out that it is an edible-oil-and-fat constituent which can be used also for all uses that further usual edible oil and fat has, and came to complete this invention.

[0009]Namely, the 1st of this invention — a glycyrrhiza hydrophobic extract — a jig resaler — ide — it being related with an edible-oil-and-fat constituent which dissolves in a mixture, and, A glycyrrhiza hydrophobic extract is GURIKURIZA preferably. Reverse side RENSISU or GURIKURIZA It is an extract from a grabbler, a glycyrrhiza hydrophobic extract is 0.5 % of the weight or more among said edible-oil-and-fat constituent to 100 % of the weight of edible-oil-and-fat constituents — and said jig resaler — ide — the inside of a mixture, and a jig resaler — it is still more preferred that ide is 20 % of the weight or more. The 2nd of this invention is related with fats-and-oils use foodstuffs which use said edible-oil-and-fat constituent.

[0010]

[Embodiment of the Invention]Below, an embodiment of the invention is described in detail. the solvent in which the glycyrrhiza hydrophobic extract used by this invention is dissolved — a jig resaler — ide — it is a mixture — the jig resaler in a mixture — ide — the ingredients of an except are monoglyceride and triglyceride. a glycyrrhiza hydrophobic extract receives 100 % of the weight of edible-oil-and-fat constituents among an edible-oil-and-fat constituent — 0.5 % of the weight or more — \*\* and a jig resaler — ide — as for a content, it is preferred that it is 20 % of the weight or more. If a glycyrrhiza hydrophobic extract is less than 0.5 % of the weight to 100 % of the weight of edible-oil-and-fat constituents, effects, such as a hypoglycemic action and a lipid metabolism improving action, may not be demonstrated enough. a jig resaler — ide — if a content is less than 20 % of the weight, or the effect of dissolving a glycyrrhiza hydrophobic extract is not fully demonstrated, the crystal of a glycyrrhiza hydrophobic extract may deposit and it may be unsuitable as an eating-and-drinking article. although a monoglyceride content is not limited in particular on the other hand since it is determined by the gestalt of the last foodstuffs — a jig resaler — ide — it is 20 or less % of the weight preferably 50 or less % of the weight among a mixture. If a monoglyceride content exceeds 50 % of the weight, since the crystal of monoglyceride deposits in ordinary temperature, handling nature may be bad. a residual triglyceride content — a jig resaler — ide — it is 60 or less % of the weight preferably 80 or less % of the weight among a mixture. If a triglyceride content exceeds 80 % of the weight, the solubility of a glycyrrhiza hydrophobic extract may fall, and a crystal may deposit. As for the fatty acid residue which constitutes glyceride, it is possible for a carbon number to choose those saturated fatty acid and unsaturated fatty acid according to a use, although the thing of 8-24 is illustrated. For example, in the case of a frying oil use, it is preferred that it is unsaturated fatty acid, and when it is plastic fat, saturated fatty acid may also be included. such a jig resaler — ide — although a mixture can be manufactured, for example by the ester interchange of fatty acid, esterification of glycerin and oil and fat, and glycerin, etc. — this invention — a jig resaler — ide — it is not limited at all by the manufacturing method of a mixture, a refining method, and the history.

[0011]The glycyrrhiza used for this invention The vegetation of a Leguminosae liquorice group (Glycyrrhiza group). For example, Glycyrrhiza uralensis (G. uralensis, GURIKURIZA reverse side RENSISU), G. inflata (GURIKURIZA INFU rata), G.glabra (GURIKURIZA grabbler), G. It is eurycarpa (GURIKURIZAYURI kalpa), G.aspera (GURIKURIZA ASUPERA), etc., and is GURIKURIZA preferably. Reverse side RENSISU, GURIKURIZA INFU rata, GURIKURIZA It is a grabbler etc. Glycyrrhiza is foodstuffs which have meal experiences for many years, and is used also as a food additive or a crude drug.

[0012]The glycyrrhiza hydrophobic extract used for this invention can be obtained by extracting from glycyrrhiza or its powder using an organic solvent. Or it can obtain by extracting from the water extraction residue which extracted and removed the hydrophilic component from glycyrrhiza or its powder with water etc. beforehand, or the thing which dried the residue using an organic solvent.



[0013]The organic solvent used here has that preferred by which use was permitted to manufacture of drugs, food additives, etc., and processing, for example, acetone, ethanol, glycerin, ethyl acetate, diethylether, butanol, propanol, propylene glycol, methanol, etc. are mentioned. At least two or more sorts in these solvents may be mixed and used, and these hydrous solvents may be used. In order for a single solvent to extract the hydrophobic component of glycyrrhiza efficiently, ethanol, acetone, ethyl acetate, etc. are preferred. Thus, the obtained glycyrrhiza hydrophobic extract can be used for this invention as a crude extract or a half-refining extract, unless an impurity unsuitable as drugs or foodstuffs is contained, but it may perform purification treatment, such as decolorization and deodorization, if needed.

[0014]To the glycyrrhiza hydrophobic extract of this invention, as a flavonoid constituent, the GURISHI coumarin (glycycomarin), GURISHI roll (glycyrol), GURISHIRIN (glycyrin), RIKURICHI genin (liquiritigenin), the Glico recon (glicoricone), Glove lysine (glabridin), GURURARINB (glyurallin B), RIKOKU chestnut (licocoumarone), cancer KAONINI (gancanin I), Dehydro gloea SUPERIND (dehydroglyasperin D), ECHINACHIN (echinatin), isoRIKOFU lab Norian (isolicoflavonol), Dehydro gloea SUPERINC (dehydroglyasperinG), Gloea SUPERINB (glyasperin B), a GURICHIRU iso flavanone (glycyrrhisoflavanone), RUPIWATEON (lupiwhiteone), gloea SUPERIND (glyasperin D), the SEMIRIKO isoflavone B (semilicisoflavone B), etc. are included.

[0015]a glycyrrhiza hydrophobic extract and a jig resaler — ide — in order to obtain the edible-oil-and-fat constituent of this invention from a mixture, what is necessary is just to agitate until it adds a glycyrrhiza hydrophobic extract to a glyceride mixture and will be in a uniform state, and not less than 30 \*\* of warming (40 \*\* - 60 \*\*) is preferably effective in promotion of the dissolution. An organic solvent may be distilled off, after adding the glycyrrhiza hydrophobic extract in the state where it dissolved in organic solvents, such as ethanol, to a glyceride mixture and mixing.

[0016]Although it may be alone used for pharmaceutical preparation, such as an object for cooking, and a soft capsule, since the edible-oil-and-fat constituent of this invention can be mixed with an oily subject and freedom, it can mix other edible oil and fat according to the purpose, and can use physical properties as adjustment fats-and-oils use foodstuffs. In this case, other kinds and amount of the edible oil and fat used can control the characteristics, such as workability and the melting point, by being determined in consideration of the terms and conditions of each physical properties required of a product, a service temperature region, etc., and adjusting that kind and addition. For example, corn oil, rapeseed oil, Hy Ersin rapeseed oil, soybean oil, olive oil, Animal oil, such as vegetable oil, such as safflower oil, cottonseed cake oil, sunflower oil, rice bran oil, palm oil, and palm kernel oil, fish oil, beef tallow, lard, milk fat, and yolk oil, the fats and oils which performed judgment, hydrogenation, an ester interchange, etc. by making these into a raw material, or these mixed oils can be used. moreover — when producing pharmaceutical preparation, such as a soft capsule, in order to improve the handling of the edible-oil-and-fat constituent of this invention — a jig resaler — ide — the mobility of a mixture is important and few directions of the monoglyceride content with the high melting point are good. As frying oil, monoglyceride is made desirable [ in the whole frying oil / less than 2 % of the weight ].

[0017]Thus, the edible-oil-and-fat constituent obtained can be used for the use and the water-in-oil type emulsion as plastic fat, such as liquefied fats and oils, such as frying oil, margarine, and shortening, and oil-in-water emulsion. The fats-and-oils use foodstuffs of this invention which makes these raw material and is manufactured, Chewing gum, chocolate, a candy, jelly, a biscuit, Frozen desert, such as confectionary, such as a cracker, ice cream, and ice cream, tea, Drinks, such as a soft drink, a nutritional drink, and a cosmetics drink, Japanese noodles, a Chinese noodle, Seasonings, such as boiled fish paste, such as noodles, such as spaghetti and instant noodles, boiled fish paste, a fishcake tube, and half a piece, bread, a ham, soup and a dressing, mayonnaise, and sauce, etc. are illustrated, and it is available to pet food, livestock feed, etc.

[0018]The various vitamins, for example, vitamin A, aiming at fortification, D, E, etc. may be added and used together, and the various perfume as a taste agent, a milk related substance, for example, whole milk powder, powdered skim milk, fermented milk, various salts, milk fat, etc. may be added and used together. As raw materials other than the above, it is usable in all of the antioxidant used for the usual water-in-oil type emulsion and oil-in-water emulsion, colorant, etc.

[0019]

[Example]Although an example is given to below and this invention is explained to it in detail, these

examples do not restrict this invention at all. In the following statements, a "weight section" and " % of the weight" are meant a "part" and all "%".

[0020](Example 1 of an experiment) After extracting at a room temperature for 5 hours using glycyrrhiza powder (ten copies, Kaneka Sun Spice Co., Ltd.) and ethanol (50 copies), the glycyrrhiza hydrophobic extract produced by distilling off ethanol — a commercial jig resaler — ide — the solubility over a mixture (TAYO KAGAKU CO., LTD.; SANFATTO GDO-D, Riken Vitamin Co., Ltd.; poem Z-500) and common edible oil and fat was investigated (Table 1).

[0021]

[Table 1]

	グリセライド組成 (%)			甘草疎水性抽出物	
	MG	DG	TG	(%)	溶解性
サンファットGDO-D	4.0	96.0	—	10	可溶
ボエムZ-500	41.7	46.9	11.4	10	可溶
ナタネ油	0.1	1.0	98.9	5	不溶
大豆油	0.1	0.8	99.1	5	不溶
コーン油	0.1	1.8	98.1	5	不溶

(Example 2 of an experiment) After performing an ester exchange reaction by making calcium hydroxide into a catalyst in accordance with a conventional method using rapeseed oil (75 copies) and glycerin (25 copies), refining by molecular distillation was performed and the glyceride mixture 1 was obtained. the presentation of this glyceride mixture — a monoglyceride 16.5% and jig resaler — ide — it was triglyceride 14.3% 69.2%.

[0022](Example 3 of an experiment) Palm oil (20 copies), a palm elasticity oil (IV = 62 or 65 copies), performing refining by molecular distillation after a reaction by making sodium methylate into a catalyst in accordance with a conventional method using glycerin mono- fatty acid ester (trade name; Emma Rusy MO, the Riken Vitamin make, 15 copies) — a jig resaler — ide — the mixture 2 was obtained. the presentation of this glyceride mixture — a monoglyceride 1.7% and jig resaler — ide — it was triglyceride 58.0% 40.3%.

[0023](Example 1) the extract (two copies) used in the example 1 of an experiment — the jig resaler of the example 2 of an experiment — ide — the edible-oil-and-fat constituent was obtained by dissolving until it adds into the mixture 1 (30 copies), and it warms at 70 \*\*, and it becomes uniform, agitating.

[0024](Example 2) the extract (three copies) used in the example 1 of an experiment — the jig resaler of the example 3 of an experiment — ide — the edible-oil-and-fat constituent was obtained by dissolving until it adds into the mixture 2 (100 copies), and it warms at 60 \*\*, and it becomes uniform, agitating.

[0025](Example 3)

Carrying out temperature control of the edible-oil-and-fat constituent (32 copies) obtained in <adjustment of oil phase> example 1 to 70 \*\*, lecithin (0.1 copy) and polyglyceryl fatty acid ester (0.1 copy) were dissolved one by one, and the oil phase part was adjusted.

[0026]Warming and agitating <adjustment of aqueous phase> albumin voice protein (one copy), and skim milk (60 copies) to 50 \*\*, sucrose fatty acid ester (0.1 copy) and granulated sugar (ten copies) were added, and the water phase part was adjusted.

[0027]After carrying out preliminary emulsification of the water phase part and oil phase part of which <creation of oil-in-water type emulsified matter> adjustment was done, it sterilized for 4 seconds at 145 \*\* with the UHT sterilization machine. Subsequently, after carrying out vacuum cooling, it uniformed by the pressure of 90 kg/cm<sup>2</sup> with the uniformity machine, and also plate cooling was carried out to 10 \*\*, and cream was obtained.

[0028]<production of mousse> water (51 copies), granulated sugar (13 copies), isomerized sugar (ten copies), and a gelling agent (one copy) — 90 \*\* — warming — the cream (15 copies) and yogurt (ten copies) which were obtained by the above were mixed after the dissolution. Subsequently, after citrate adjusted the pH to 4.0, the cup was filled up, it cooled and the mousse was obtained, after sterilizing for 20 minutes at 85 \*\*.

[0029](Example 4)

Carrying out temperature control of the edible-oil-and-fat constituent (103 copies) obtained in <adjustment of oil phase> example 2 to 60 °C, lecithin (0.5 copy) was added, it dissolved and the oil phase part was obtained.

[0030]After adding 16.5% of water and performing emulsification for 20 minutes, agitating in 83.5% of the oil phase part of which <production of margarine> adjustment was done, cooling kneading was carried out by pair NETA, and margarine was produced.

[0031](Example 5) In accordance with the conventional method, the bisquit was produced by the combination which consists of weak flour (100 copies), the margarine (35 copies) of Example 4, very-refined sugar (40 copies), a whole egg (five copies), a salt (0.5 copy), and water (18 copies).

[0032]

[Effect of the Invention]According to this invention, the edible-oil-and-fat constituent broadly applicable to foodstuffs with a sufficient sex which is stable and deals with it and which carries out glycyrrhiza hydrophobic extract content can be obtained. Fats-and-oils use foodstuffs with effects, such as a hypoglycemic action and a lipid metabolism improving action, can be easily obtained by this invention.

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[Translation done.]